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ABSTRACT

This instructor's lesson plan guide on medical emergencies is one of fifteen modules designed for use in the training of emergency medical technicians (paramedics). Ten units of study are presented: (1) diabetic emergencies; (2) anaphylactic reactions; (3) exposure to environmental extremes; (4) alcoholism and drug abuse; (5) poisoning and overdose; (6) acute abdomen; (7) genitourinary problems; (8) medical emergencies in the geriatric patient; (9) aquatic emergencies; and (10) techniques of management including nasogastric tube insertion and urinary catheterization. Each unit contains these elements: behavioral objectives, a content outline, demonstration outlines, and list of needed equipment and materials. Skill evaluation sheets are provided. (It is suggested that each module can be presented individually or combined with other modules to construct a course for a selected group of students. CE 017 514 is a course guide for use in planning and implementing the total training program.) (JH)

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National Training Course

EMERGENCY MEDICAL TECHNICIAN PARAMEDIC

INSTRUCTOR'S LESSON PLANS

Module – X

Medical Emergencies

CE 017 524

U.S. Department of Transportation / National Highway Traffic Safety Administration

National Training Course

EMERGENCY MEDICAL TECHNICIAN
PARAMEDIC

INSTRUCTOR'S LESSON PLANS

Module – **X**

Medical Emergencies

CE 017 524

U.S. Department of Transportation / National Highway Traffic Safety Administration

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HOW TO USE THE INSTRUCTOR LESSON PLANS

NOTES

The *Instructor Lesson Plans* are guides for teaching an advanced-level training program for emergency medical technicians. The *Plans* cannot be used by the instructor to develop the competency to conduct the program; the instructor should have this as a prerequisite to teaching the course.

The *Instructor Lesson Plans* are comprised of 15 modules, each containing the information and instructions needed to conduct a program on a particular subject. Each module can be used by itself or in concert with other modules.

Each module is subdivided into instructional units that deal with a particular segment of the module subject. Generally, the units contain the following components:

- *Performance Objectives.* These are classified as knowledge (K) objectives or skill (S) objectives. They are written in behavioral terms so they can be evaluated either through observation of student activities or through results obtained under specified conditions.
- *Unit Activities.* Reading assignments, reference materials, and outside activities are presented for both the students and the instructor. If the activities are identical, only the instructor's activities are presented.
- *Equipment and Materials.* Educational equipment includes chalkboard, overhead projector, slide projector, and screen. Medical equipment and materials required are drawn from those listed in Appendix F of the *Course Guide*.

- *Content Outline.* This presents the topics to be covered during the presentation of the unit. Where appropriate, it is divided into single skills or concepts. This approach gives the instructor the flexibility to add or delete specific skills and information. The content outline also provides directions to the instructor indicating when the use of demonstrations or group discussions would be most appropriate.

  Because the units are designed to be taught by technically competent instructors, the content outlines are not specific; they only enumerate topics and subtopics. It is expected that the instructor's skill and knowledge will supplement the depth of the course content outline. The instructor is encouraged to prepare additional notes.

- *Demonstration Outlines.* These are designed to present procedural steps that are important in performing the particular skill or calculation. Steps that are critical or that may lead to common errors are emphasized. Where critical steps exist, these outlines suggest what should be demonstrated.
- *Practice Sessions.* These sessions serve as guides to activities to be performed by students applying the skills. They may be performed in the classroom or assigned as homework. During classroom practice sessions, the instructor will be available to observe and correct student performance and to answer any questions.
- *Skill Evaluations.* The skill evaluation sheets provide checkpoints for the instructor to use to insure that students are following appropriate procedures or sequences. Skill evaluation sheets also provide a convenient method for feedback to students having particular problems with a given skill, and for monitoring a student's progress in attaining skill objectives.

  The skill evaluation should occur only after the students have had an opportunity to practice the skill under the supervision of the instructor. The skill evaluation sheets can be distributed during, or before, the demonstration or practice session. Thus, they can be used as a job aid during practice. They should not be used, however, as a job aid while the student is being evaluated. The sheets are designed to provide a learning and evaluation tool

NOTES

and are not intended to mandate performance in the field in a set manner, irrespective of the patient's condition or situation.

Satisfactory performance of a given skill is defined as the correct performance of all steps in the proper sequence. The instructor's judgment is required to define correct performance and sequence of steps in a skill. Skill evaluations may be repeated at intervals throughout the course to assess skill decay and the need for remedial practice. Some instructors may wish to test skills immediately after they have been learned and again at the conclusion of the course.

The alphanumeric coding system is used to identify the various modules and units. When you see, for example, in Module II, **3.6.1.K,** the **3** indicates the unit, the **6** indicates the main instructional topic, the **1** indicates the subsection of the major topic outlined in **3.6**, and the **K** indicates the teaching objective (in this case, knowledge).

To illustrate further, **3.6.1.K** would translate into:

3 = Unit number
6 = The main topic of the instructional section (The first two numbers—e.g., **3.6**—refer to a major heading in the unit content outline.)
1 = A subsection of the major topic outlined in **3.6** (This number relates to the number of objectives listed under skill or knowledge objectives and not to the content outline.)
K = Knowledge objective
S = Skill objective

The three-digit reference numbers (e.g., **3.6.1**) within each module refer to the topical section in that module only. For example, in Module II, any topical heading with **3.6** as the first two digits refers to the discussion of the components of patient assessment in Unit 3.

A visual presentation of Unit 3, by Module II, of the coding system is presented on the following pages.

NOTES

SAMPLE PAGE

CODING SYSTEM EXAMPLES

NOTES

- Abdomen
- Extremities

3.6.1.K Given a situation describing a patient with a possible illness or injury who may or may not be able to communicate, the student should be able to describe the procedure for evaluating the patient described. Minimally, the student should include the appropriate primary assessment and specify the order of the four components of the secondary assessment and the areas of the assessment that would be emphasized.

the demonstration, auscultation of the lung, heart, and abdominal sounds.

3.6.1.S Given a student posing as a communicative patient, the student should be able to demonstrate the procedure for conducting a patient assessment when the patient is suspected of having the following:

SAMPLE PAGE

CODING SYSTEM EXAMPLES

NOTES

8. Practice Session 3

3.6. Four components of assessment (order)

A. If the patient can communicate, determine if he has a medical or trauma-related problem.

1. If a medical problem, the general order should be:
   a. Evaluate the diagnostic and vital signs.
   b. Develop the patient's history.
   c. Examine for a medical problem.

Skill Evaluation 3.6.1.S: Assessment of a Communicative Patient With a Suspected Trauma-Related Problem

Place an "X" in the appropriate column to indicate steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Student posing as a victim
Stethoscope

Clinical Training

NOTES

To present this program, it will be necessary to have access to the clinical units listed below. If a unit is not available, adjustments should be made to insure that the activities proposed for that unit are included in others. Specific guidelines for the clinical units are included in the modules. The student's training should be supervised in each of the following clinical areas:

- Emergency department
- Intensive care unit/coronary care unit
- Operating/recovery room
- Intravenous (IV) team
- Pediatric unit
- Labor suite/delivery room/newborn nursery
- Psychiatric unit
- Morgue
- Mobile intensive care unit

Sample forms for maintaining student activity records are included in the *Instructor Lesson Plans*. The forms are designed so that the medical director can determine the number of times, and how successfully, a student has performed a skill. The medical director also will be able to determine how much time the student needed to become proficient in the skill. Further, the medical director will be able to evaluate student performance under a number of preceptors, because certain skills are repeated in various clinical units (e.g., initiating an IV is performed by the student with the IV team and in the emergency department and intensive care unit).

Although the clinical experience is listed with the module, it need not be presented each time, even if a number of modules are being presented.

Testing and Evaluating the Student

It is recommended that each student be evaluated on proficiency of skill and knowledge at the completion of each module. Skill evaluation sheets have been provided for each skill in each unit. These sheets can be used as guides for evaluating the student's skill proficiency. The evaluation of the knowledge objectives is left to the discretion of the instructor, according to predetermined objectives.

Testing of knowledge should stress areas of clinical relevance over basic science. No matter what type of evaluation system is used, students should be kept informed of their progress and should be given additional activities to supplement weak areas.

As previously stated, the emphasis is on student competency, rather than on the total number of hours the student is involved in the program. Thus, it is possible for the student to be tested and given credit for any module. The medical director should not assume the student's competency simply because of prior training, but should develop an evaluation method to determine the student's proficiency based on first-hand observation and experience. With this type of method, it is possible for students to receive credit for prior training experience. This would be especially applicable for those modules that are primarily a review of skills concerned with Emergency Medical Technician-Ambulance; for example, soft-tissue injuries and rescue.

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MODULE X MEDICAL EMERGENCIES

INTRODUCTION

Prerequisites

The students must have successfully completed the following modules:

I. The Emergency Medical Technician, His Role, Responsibilities, and Training

II. Human Systems and Patient Assessment

III. Shock and Fluid Therapy

Description of Module

This module is designed to introduce the student to the identification and management of various medical emergencies. Emergency problems discussed include diabetic emergencies, anaphylactic reactions, exposure to environmental extremes, alcoholism, poisoning, acute abdomen, genitourinary problems, and medical emergencies in the geriatric patient. There are 10 units in this module:

Unit 1. Diabetic Emergencies

Unit 2. Anaphylactic Reactions

Unit 3. Exposure to Environmental Extremes

Unit 4. Alcoholism and Drug Abuse

Unit 5. Poisoning and Overdose

Unit 6. Acute Abdomen

Unit 7. Genitourinary Problems

Unit 8. Medical Emergencies in the Geriatric Patient

Unit 9.* Aquatic Emergencies

Unit 10.* Techniques of Management

- Nasogastric tube insertion*
- Urinary catheterization*

There is no clinical experience unit in this module.

NOTES

*Optional.

UNIT 1 emt-p

DIABETIC EMERGENCIES

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

1.1.1.K Given a list of functions, the student should be able to identify the function of insulin in the body.

1.1.2.K Given a list of statements, the student should be able to select the one(s) that describes the effect on the body if there is:

- An excess of insulin with respect to the amount of glucose present
- A lack of insulin with respect to the amount of glucose present

1.2.1.K Given a list of definitions, the student should be able to select the one(s) that best defines:

- Diabetes mellitus
- Diabetic ketoacidosis
- Insulin shock
- Hyperglycemia
- Hypoglycemia

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

1.2.2.K Given a group of situations describing patients with various signs and symptoms and vital signs, the student should be able to identify the patient's problem as hypoglycemia or hyperglycemia.

1.2.3.K Given a patient with either hypoglycemia or hyperglycemia and a list of possible treatments, the student should be able to select the appropriate treatment and give one justification for that treatment.

NOTES

Instructor Activities

Assign the material referred to below during the class period immediately before beginning the unit:

- Chapter 10, Unit 1, of the *Text*
- Knowledge objectives for this unit

Prepare a lecture and discussion session following the content outline on page X-5. Include the following activities:

- Inform the students there will be no demonstrations or practice sessions in this unit.
- When describing the role of insulin in glucose transport, present a diagram showing:
  - — Glucose molecule
  - — Cell membrane
  - — Glucose carrier
  - — Function of insulin in facilitating transport of glucose into the cell
- Present the various differences between insulin shock and diabetic coma, and have the students develop a list on the chalkboard of the signs and symptoms of each, explaining each sign and symptom.
- Answer questions.

Test the students on completion of the entire module, using the objectives as a guide.

Equipment and Materials

Equipment—Educational

Chalkboard and chalk

Equipment—Medical

Instant glucose

Materials

Knowledge objectives (optional)
Text

Content Outline

1.1. Insulin

A. Point out that it is secreted by the endocrine portion of the pancreas.
B. Discuss the function.
   1. Point out that the function of insulin is to increase the rate of glucose transfer into the cells—it acts as a catalyst
   2. Draw a diagram showing:
      a. Glucose is too large a molecule to diffuse through a membrane at an adequate rate
      b. Glucose must attach a glucose carrier to get through a membrane
      c. Insulin increases the reactions of glucose with a glucose carrier
C. Discuss the regulation of insulin.
   1. Glucose has a direct effect on pancreatic activity in secreting insulin.
   2. Excess glucose in the system stimulates pancreas.
   3. Pancreas secretes insulin, causing glucose to enter the cells until the normal level in bloodstream returns.
D. Discuss the effect of an insulin deficit.
   1. Glucose (food supply of cells—sugar) cannot enter a cell fast enough to be adequate supply. Therefore,

NOTES

glucose accumulates in the blood, causing osmolarity to rise.

2. Cell must burn fats and proteins to form energy.
3. Problem is that the metabolism of fats forms acids as a byproduct, causing acidosis. (Review acidosis—Module III.)

E. Discuss the effect of insulin excess.

1. Glucose enters the cells too quickly. Therefore, the amount of glucose in the bloodstream falls below normal limits.
2. Neurons (brain cells) require a constant supply of glucose, but the supply is not available.
3. This unavailability causes severe excitement and then depression of neurons—convulsions and then coma if hypoglycemia is extreme.

1.2. Diabetes mellitus

A. Define it as an inability of the pancreas to secrete an adequate amount of insulin to balance the glucose.

B. Discuss the problem.

1. Inadequate use of glucose by the cells.
2. Glucose lost through urine.
3. Cells are forced to use fats and proteins, causing nutrient deficiency and accumulation of ketones and acids as byproducts.

C. Discuss diabetic ketoacidosis (insufficient supply of insulin with respect to available glucose).

1. Discuss hyperglycemia—excess of sugar in the system because of a lack of insulin.
2. Point out that with a lack of insulin:
   a. Blood sugar rises
   b. Patient undergoes massive osmotic diuresis, causing dehydration and even shock
   c. Cells cannot use glucose as an energy source, but must switch to other sources, such as fats, whose metabolism leads to productions of acids and ketones
3. Point out that diabetic ketoacidosis usually progresses slowly—12–48 hours.
4. Discuss signs and symptoms that may be present

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a. Polyuria (excessive urine output)
b. Polydipsia (excessive thirst—because of dehydration)
c. Polyphagia (excessive hunger)
d. Nausea and vomiting
e. Tachycardia
f. Deep, rapid respirations (body's attempt to remove acid)—Kussmaul breathing
g. Warm, dry skin
h. Fruity odor on breath (presence of ketones)
i. Fever, abdominal pain, falling blood pressure

5. Discuss treatment
   a. Maintain airway and administer oxygen.
   b. Start intravenous (IV) therapy, usually a normal saline solution.
   c. Draw blood samples.
   d. Monitor cardiac rhythm for indications of high serum potassium.
   e. If in doubt about diagnosis (hypo- vs. hyperglycemia), administer glucose (described in next section).

D. Discuss insulin shock (excess supply of insulin with respect to available glucose).
   1. Discuss hypoglycemia—deficiency of sugar in blood-stream because of excess insulin.
   2. Point out that with an excess of insulin (lack of sugar):
      a. Blood sugar falls
      b. Available sugar enters the cells too quickly
      c. Sugar supply to the neurons (brain cells) is not available
      d. This situation causes severe excitement and then depression of neurons—convulsions and then coma in extreme cases.
   3. Point out that insulin shock usually progresses very rapidly—more dangerous than hyperglycemia because of possible rapid brain injury.
   4. Discuss signs and symptoms that may be present:
      a. Weak, rapid pulse
      b. Cold, clammy, pale skin
      c. Diaphoresis
      d. Weakness, lack of coordination

NOTES

e. Headache
f. Irritable, nervous, or bizarre behavior
g. Seizures and coma in severe cases

5. Discuss treatment:
   a. If the patient is comatose:
      (1) Maintain airway and administer oxygen.
      (2) Start an IV, dextrose in water.
      (3) Draw blood samples.
      (4) Administer 50-percent gluclose IV push.
      (5) Note that "instant glucose" may be administered instead of an IV push. Describe "instant glucose" and the procedure for its use.
   b. If the patient is awake, alert, and able to swallow, administer orange juice sweetened with sugar, cola, candy, etc.

E. Discuss general guidelines
   1. Diabetics are not the only patients who are prone to hypoglycemia—alcoholics or patients ingesting poisons may develop the same syndrome.
   2. Any patient in a coma of unknown etiology should receive glucose.
   3. When in doubt as to whether a patient is suffering from hyper- or hypoglycemia, glucose should be administered.

NOTES

UNIT 2 emt-p

ANAPHYLACTIC REACTIONS

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

2.2.1.K Given a list of definitions, the student should be able to select the one that best defines an anaphylactic reaction.

2.2.2.K Given a list of causes, the student should be able to select the one(s) that may cause an anaphylactic reaction.

2.3.1.K Given a list of definitions, the student should be able to select the one that best defines an antigen and an antibody.

2.3.2.K Given a set of descriptions of patients, including vital signs and significant signs and symptoms, the student should be able to select those patients who are suffering from an anaphylactic reaction.

2.3.3.K Given a patient exposed to an antigen, the student should be able to describe what happens to the body to cause:

- Anaphylactic shock
- Airway obstruction—that is, asthma

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

2.4.1.K The student should be able to list at least five signs or symptoms of an anaphylactic reaction.

2.4.2.K Given a situation describing a patient's condition and vital signs, the student should be able to determine if the patient is having an anaphylactic reaction.

2.4.3.K Given a list of definitions, the student should be able to select the one(s) that best defines urticaria.

2.5.1.K Given a description of a patient having an anaphylactic reaction and a list of treatments, the student should be able to select the treatment(s) that is appropriate.

2.5.2.K Given a list of actions, situations for use, and dosages, the student should be able to select the correct action, situation for use, and dosage for each of the following:

- Oxygen
- Epinephrine
- Levophed
- Aminophylline
- Hydrocortisone

Instructor Activities

Assign the material referred to below during the class period immediately before beginning this unit:

- Chapter 10, Unit 2, of the *Text*
- Knowledge objectives for this unit

Prepare a lecture session following the content outline on page X-11. Provide any slides, overlays, or diagrams. Include the following activities during your presentation:

- Review the knowledge objectives.
- Inform the students there will be no demonstrations or practice sessions in this unit.
- When discussing the signs and symptoms of anaphylactic reactions, have the students develop a list on the chalkboard to begin the presentation.

NOTES

- Have the students develop a list of possible treatments, and be able to justify the treatment.
- Ask for questions following the presentation.

Test the students upon completion of the entire module, using the objectives as a guide.

Equipment and Materials

Equipment—Educational

Chalkboard and chalk

Materials

Knowledge objectives (optional)

Content Outline

2.1. Introduction—anaphylactic reactions

A. Definition and cause
B. Physiology
C. Signs and symptoms
D. Treatment

2.2. Definition and cause

A. Point out that it is a massive allergic reaction.
B. Point out that it occurs very rapidly or over a prolonged period.
C. Point out that it is caused by contact with a substance to which the person is sensitive—give examples:
   1. Injected—bee sting, medication given intramuscularly
   2. Ingested—oral penicillin
   3. Inhaled—pollen, ragweed (rare)

2.3. Physiology

A. Define antigen.
B. Point out that antigens react with antibodies causing cell damage.

NOTES

C. Point out that cell releases histamine.
D. Point out that histamine causes:
   1. Dilation of arterioles
   2. Increased permeability of capillaries
   3. Combination of the above two causes results in reduction of blood volume, precipitating anaphylactic shock
E. Discuss antigen—antibody reaction in lungs and bronchial tree, causing bronchiolar constriction.

2.4. Signs and symptoms

A. Point out that signs and symptoms depend on the type and severity of reaction.
B. Discuss general signs and symptoms
   1. Dyspnea; sensation of constriction in chest, throat
   2. Wheezing, sneezing, or coughing
   3. Facial swelling, especially noticeable around the eyes
   4. Severe itching, either generalized or localized
   5. Urticaria (hives)
   6. Abdominal cramps, followed by nausea and vomiting
   7. Rapid pulse
   8. Decreased blood pressure
C. Discuss patient assessment—discuss steps for evaluating a patient with possible anaphylactic reaction; review steps to evaluate signs and symptoms.

2.5. Treatment

A. Discuss general treatment
   1. Maintain an airway and administer oxygen.
   2. Notify the physician of the patient's status.
   3. If an insect sting or injection is on an extremity, do the following:
      a. Place a tourniquet above the injection site and administer 0.5 cc (cubic centimeters) of 1:1,000 epinephrine subcutaneously.
      b. Administer 0.5 cc of 1:10,000 epinephrine by deep subcutaneous injection in the other arm.
      c. Loosen the tourniquet briefly for 3–5 minutes every 15–20 minutes, then reapply.
   4. Monitor the cardiac rhythm.

NOTES

5. If shock is profound, do the following:
   a. Start an IV—D5/normal saline.
   b. Slowly administer 10 cc of 1:10,000 epinephrine IV.

B. Discuss possible drug therapy—describe drug action, usage, and dosage.
   1. Oxygen and epinephrine are the bases of therapy; other drugs are secondary
   2. Aminophylline
   3. Norepinephrine (Levophed)
   4. Hydrocortisone

C. Point out that the patient should be transported to the hospital as soon as possible.

2.6. Summary

A. Definition and cause
B. Physiology
C. Signs and symptoms
D. Treatment

NOTES

UNIT 3 emt-p

EXPOSURE TO ENVIRONMENTAL EXTREMES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

3.1.1.K Given a list of descriptions, the student should be able to select the one that best describes:

- Heat cramps
- Heat exhaustion
- Heat stroke

3.1.2.K Given a list of signs and symptoms, the student should be able to select the appropriate signs and symptoms for:

- Heat cramps
- Heat exhaustion
- Heat stroke

3.1.3.K Given a situation describing a patient's condition and vital signs, the student should be able to determine whether the patient is suffering from:

- Heat cramps
- Heat exhaustion
- Heat stroke

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*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

NOTES

3.1.4.K Given a patient suffering from heat cramps, heat exhaustion, or heat stroke, the student should be able to describe the treatment for the patient.

3.1.5.K Given a patient with heat cramps and a list of statements, the student should be able to select the statement that describes why water should not be administered to the patient without supplementary salt.

3.1.6.K Given a normotensive patient in heat stroke and a list of statements, the student should be able to select the statement that explains why large amounts of IV fluids should not be administered to the patient.

3.1.7.K Given three patients suffering from heat cramps, exhaustion, and heat stroke, respectively, the student should be able to rank the patients according to severity. The student should also be able to justify his ranking with at least one reason.

3.2.1.K Given a list of descriptions, the student should be able to select the one that best describes:

- Frostbite
- General cooling

3.2.2.K Given a list of signs and symptoms, the student should be able to select the appropriate signs and symptoms for:

- Frostbite
- General cooling

3.2.3.K Given a situation describing a patient's condition and vital signs, the student should be able to determine whether the patient is suffering from:

- Frostbite
- General cooling

3.2.4.K Given a patient suffering from frostbite or general cooling, the student should be able to describe the treatment for the patient.

3.2.5.K Given a list of statements, the student should be able to select the one that best describes the role of vigorous massage in the treatment of frostbite.

3.2.6.K Given a patient in cardiac arrest, precipitated by general body cooling, and a list of activities, the student should be able to select the one(s) that best describes the treatment of the patient.

NOTES

Instructor Activities

Assign the material referred to below during the class period immediately before beginning this unit:

- Chapter 10, Unit 3, of the *Text*
- Knowledge objectives for this unit

Prepare a lecture and discussion session following the content outline on page X-18. Provide any slides, overlays, or diagrams. Include the following activities during the presentation:

- Review the knowledge objectives.
- Inform the students there will be no demonstrations or practice sessions in this unit.
- Because of the students' familiarity with this subject area, present each problem, if appropriate, as a case study. Permit the students to identify the problem and propose a treatment.
- Ask for questions.

Test the students upon completion of the entire module, using the objectives as a guide.

Equipment and Materials

Equipment—Educational

Chalkboard and chalk

Materials

Knowledge objectives (optional)
Text

Content Outline

NOTES

Introduction

- Review the knowledge objectives.
- Introduce the topics to be discussed:

  — Heat exposure—description and cause, signs and symptoms, treatment
    a. Heat cramps
    b. Heat exhaustion
    c. Heat stroke
  — Cold exposure—description and cause, signs and symptoms, treatment
    a. Frostbite
    b. General cooling

3.1. Emergencies due to heat exposure

A. Heat cramps
   1. Description and cause
      a. Define them as severe muscle pains, usually in the lower extremities; occasionally in the abdomen.
      b. Point out that they are caused by excessive diaphoresis and salt depletion.
      c. Point out that they usually afflict those working in a hot environment.
   2. Signs and symptoms
      a. Person found in a hot environment
      b. Excessive diaphoresis
      c. Severe muscle pains
      d. Dizziness; may be nauseated
      e. Clear sensorium
      f. Temperature normal
   3. Treatment
      a. Remember that treatment is directed toward eliminating exposure and restoring lost salt and water.
      b. Move the patient to a cool place.
      c. Place in a supine position.
      d. Do *not* administer pure water—this will only increase the problem.

e. Administer salt and water (e.g., Gatorade, teaspoon of salt in lemonade).
f. If the patient is too nauseated to drink, initiate an IV with normal saline.

B. Heat exhaustion
1. Description and cause
a. Define it as as a more severe reaction to salt loss and peripheral blood pooling.
b. Point out that it is caused by excessive diaphoresis, salt depletion, and peripheral pooling of blood.
c. Point out that it usually afflicts those working in a hot environment; also the elderly are more prone.
2. Signs and symptoms
a. Weakness, dizziness, or syncope
b. Excess diaphoresis
c. Nausea and vomiting
d. Skin—pale and clammy
e. Rapid and weak pulse
f. Rapid and shallow respirations
g. Blood pressure—may be decreased
h. Temperature—normal or low
3. Treatment
a. Remember that treatment is similar in principle to heat cramps.
b. Move the patient to a cool place.
c. Remove as much clothing as possible.
d. Place in a supine position with legs elevated.
e. Do *not* administer pure water—this will only increase the problem.
f. Administer salt and water (e.g., Gatorade, teaspoon salt in lemonade).
g. If the patient is too nauseated to drink, initiate an IV with normal saline.
h. Sponge the patient with water or alcohol.

C. Heat stroke
1. Description and cause
a. Point out that it is caused by a severe disturbance in the body's heat-regulating mechanism—body temperature in excess of 105° F.
b. Point out that it is an extreme medical emergency. There is a 25–50 percent mortality rate.

NOTES

c. Point out that it is commonly seen in males over 40, especially alcoholics, but it can afflict anyone.
d. Point out that it is brought on by excessive exposure to the sun or confinement in a hot atmosphere.

2. Signs and symptoms
   a. Temperature above 105° F
   b. Hot, flushed, dry skin
   c. Strong, bounding pulse
   d. Headache, dizziness
   e. Dryness of the mouth
   f. Syncope or seizures
   g. Coma
3. Treatment
   a. Maintain an airway and administer oxygen.
   b. Move the patient to a cool place.
   c. Remove as much clothing as possible.
   d. Place in a supine position with the legs elevated.
   e. Use any means available to cool the patient—speed is of the essence.
   f. Monitor the temperature (rectal)—temperature must be lowered to less than 102° F.
   g. If an IV is necessary, use dextrose in water at a minimum flow. Patients with heat stroke are highly susceptible to congestive heart failure; if the patient is in shock, however, treat as any other case of shock.
   h. Monitor cardiac activity.

3.2. Emergencies due to cold exposure

A. Frostbite
   1. Cause and description
      a. Define it as freezing of isolated parts of the body—ears, nose, hands, feet.
      b. Point out that it is caused by prolonged or intense cold.
      c. Point out that severe vasoconstriction of the vessels occurs—cells are deprived of oxygen and nutrients.
   2. Signs and symptoms
      a. Discuss changes based on severity:
         (1) First, red and inflamed

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(2) Then, gray or mottled
(3) If frozen, white and very stiff

b. Discuss pain—may vary depending on the severity.
(1) Initially, stinging and burning
(2) Followed by paresthesia
(3) Finally, complete loss of feeling
(4) With thawing, burning pain—may be very severe

3. Treatment
a. Point out that treatment involves rewarming the affected parts.
b. Point out that an EMT should gently remove the clothing.
c. If an extremity is affected, point out that an EMT should immerse it in warm water (106–110° F) for about 20 minutes.
d. Point out that an EMT should cover frostbitten ears or nose with his warm hand.
e. Point out that an EMT should never attempt to rewarm by rubbing or massaging—this will increase tissue damage.
f. Point out that an EMT should transport the patient—keep the affected area warm and free of pressure.
g. Point out that an EMT should not permit the patient to smoke—this causes vasoconstriction.

B. General cooling (hypothermia)
1. Description and cause
a. Define it as a general cooling of the body due to exposure.
b. Point out that it is most frequently seen in the winter among alcoholics; also mountaineers, skiers; the elderly are very susceptible even with minimal exposure.
c. Point out that the body processes are slow, eventually coming to a halt.

2. Signs and symptoms
a. State of consciousness decreases.
(1) Apathetic, indifferent
(2) Sleepy
(3) Unconscious

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b. Eyes assume a glassy stare; pupils may be fixed and dilated.
c. Pulse and respirations decrease.

3. Treatment
   a. Remember that treatment is aimed at supporting vital functions and rewarming the body.
   b. Get the patient to a heated environment.
   c. Remove wet clothing.
   d. Monitor cardiac activity.
   e. Cover the patient with blankets.
   f. Start an IV with dextrose in water—for open route only.
   g. If there is cardiac arrest, do the following:
      (1) Start basic life procedures.
      (2) Transport the patient rapidly to the hospital; do not waste time attempting advanced life support—the patient will not respond until rewarmed.

NOTES

Summary

- Review the topics covered:

  — Heat cramps
  — Heat exhaustion
  — Heat stroke
  — Frostbite
  — General cooling

- Ask for questions.

UNIT 4 emt-p

ALCOHOLISM AND DRUG ABUSE

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

4.1.1.K Given a list of statements, the student should be able to select the one that best describes the difference between "problem drinking" and "true addiction."

4.1.2.K The student should be able to list three characteristics of an alcoholic.

4.1.3.K Given a list of illnesses and injuries, the student should be able to select those illnesses or injuries to which an alcoholic is more susceptible than the average person.

4.1.4.K Given the description of a situation describing a patient with an alcoholic problem, the student should be able to select from the information listed those pieces of information that indicate an alcoholic problem.

4.1.5.K Given a list of signs and symptoms, the student should be able to select those signs and symptoms that are related to:

- Acute intoxication
- Alcoholic withdrawal syndrome

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

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4.1.6.K Given a list of situations describing various patients' conditions, including vital signs and mental status, the student should be able to select those patients who are suffering from:

- Acute intoxication
- Alcoholic withdrawal syndrome

4.2.1.K Given a list of definitions, the student should be able to select the one that best defines "drug abuse."

4.2.2.K Given a list of definitions, the student should be able to select the one that best defines:

- Psychological dependence
- Compulsive drug abuse
- Tolerance
- Physical dependence
- Addiction

4.2.3.K Given a list of the four major categories of drugs and a list of drugs, the students should be able to match the drugs with the appropriate category.

4.2.4.K Given a list of the four major categories of drugs and a list of actions on the body (i.e., respiratory depressant), the student should be able to match the action with the category.

4.2.5.K Given a situation describing a patient with a possible drug abuse problem, the student should be able to list three guidelines to be used when dealing with this type of patient.

Instructor Activities

Assign the material referred to below during the class period immediately before beginning the unit:

- Chapter 10, Unit 4, of the *Text*
- Knowledge objectives for this unit

Prepare a lecture session following the content outline below. Provide any slides, overlays, or diagrams. Include the following activities:

- Review the knowledge objectives.
- Inform the students there will be no demonstrations or practice sessions in this unit.
- Review case studies that illustrate the patient and the interpretation of the patient's signs and symptoms when the patient is an alcoholic.
- Inform the students that the management of drug overdose is discussed in Unit 5 and is treated as if it were a poisoning.
- Review case studies that illustrate the patient and the interpretation of the patient's signs and symptoms when the patient is a drug abuser.
- Ask for questions following the presentation.

Test the students upon completion of the entire module, using the objectives as a guide.

Equipment and Materials

Equipment—Educational

Chalkboard and chalk

Materials

Knowledge objectives (optional)
Text

Content Outline

Introduction

- Review the objectives for this unit.
- Introduce topics of discussion:

  — Alcoholism
    a. Background
    b. Alcoholic syndrome

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c. Profile of an alcoholic
d. Susceptibility to certain illnesses and injury
e. Clues to a suspected alcoholic problem
f. Syndromes related to alcoholism

— Drug abuse
a. Definition
b. Background
c. Terms commonly used
d. Major categories
e. Guidelines for fieldwork

NOTES

4.1. Alcoholism

A. Background
1. Point out that it is a major health problem—ranks third after heart disease and cancer.
2. Point out that there are 6–10 million alcoholics in the United States.
3. Point out that alcoholism decreases the lifespan 10–20 years.

B. Alcoholic syndrome—two phases
1. Problem drinking
a. Used to relieve tension
b. Used to depress emotional difficulties
2. True addiction
a. Point out the victim is dependent on alcohol.
b. Point out that victim may be dependent on other drugs, also.
c. Point out that abstinence causes major withdrawal symptoms.

C. Profile of alcoholic
1. Alcoholism occurs in all social strata.
2. Majority of alcoholics are working men
3. Most alcoholics consider themselves "social drinkers."
4. Characteristics of alcoholics are:
a. Drinks early in the day
b. Is prone to drink alone or secretly
c. May go on prolonged binges
d. Has withdrawal symptoms

D. Susceptibility to certain illnesses and injury (describe each briefly)

1. Subdural hematoma
2. Cirrhosis of the liver
3. Hypoglycemia
4. Pancreatitis
5. Upper gastrointestinal hemorrhage
6. Central nervous system disorders

E. Clues to suspected alcoholic problem
   1. Discuss an unexplained history of repeated gastrointestinal problems, especially bleeding.
   2. Discuss the "green tongue syndrome."
   3. Discuss cigarette burns on the clothing.
   4. Discuss chronically flushed face and palms.
   5. Discuss tremulousness.
   6. Discuss alcoholic odor on the breath.
   7. Emphasize that the patient may have the symptomatology of an alcoholic, but may have an underlying problem.

F. Syndromes related to alcoholism
   1. Acute intoxication
      a. Point out that alcohol acts as a central nervous system (CNS) depressant—there is drowsiness, disordered speech, erratic behavior.
      b. Point out that it presents the same clinical picture as insulin shock—if in doubt, treat as insulin shock.
      c. Point out that the EMT must monitor the patient—respiratory depression, cardiac arrhythmias, or shock may occur.
   2. Alcoholic withdrawal syndrome
      a. Point out that it is brought on by abstinence.
      b. Discuss the signs and symptoms:
         (1) Tremulousness
         (2) Delirium tremens
         (3) Confusion
         (4) Hallucinations
         (5) Restlessness
      c. Discuss the treatment:
         (1) Positive reassurance
         (2) IV and sedative medication may be necessary
   3. Seizures
      a. Point out that they are common in alcoholic withdrawal.

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b. Point out that they usually occur during the first 24 hours of abstinence.
c. Point out that alcoholic withdrawal should be considered in a patient with a seizure of unknown origin.
d. Review the management of a seizure patient (Module VII).

4.2. Drug abuse

A. Define it as self-administration of a drug or drugs in a manner that is not in accord with approved medical or social patterns.
B. Discuss the background:
   1. Occurs in all age groups and social strata
   2. Governed by medical practice and social patterns
      a. Discuss prescribed use of narcotics versus street use.
      b. Discuss the exceptance of smoking tobacco, even though proven hazardous.
C. Discuss the terms commonly used when discussing drug abuse (define each):
   1. Psychological dependence
   2. Compulsive drug use
   3. Tolerance
   4. Physical dependence
   5. Addiction
D. Discuss the major categories. (Each category and its effect and abuse are discussed further in Unit 5.)
   1. Narcotics—heroin, morphine
   2. CNS depressants—alcohol, barbiturates, tranquilizers
   3. CNS stimulants—amphetamines, cocaine
   4. Psychodelics—LSD, mescaline
E. Discuss the guidelines for fieldwork:
   1. Always ask every patient about the use of medications, either prescribed or self-administered.
   2. When dealing with younger patients with suspected drug-related problems, do the following:
      a. Maintain an interested nonjudgmental attitude.
      b. Explain you are to help and not to report drug violations to the authorities.

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3. Be alert for drug use in patients with unexplained stupor, coma, seizures, etc.
4. Use discretion with drugs on vehicles, that is, do not call morphine by its name, use a code.

F. Point out that management will be discussed in Unit 5.

NOTES

Summary

- Review objectives for this unit.
- Discuss topics of discussion:
  - — Alcoholism
    a. Background
    b. Alcoholic syndrome
    c. Profile of an alcoholic
    d. Susceptibility to certain illnesses and injury
    e. Clues to a suspected alcoholic problem
    f. Syndromes related to alcoholism
  - — Drug abuse
    a. Definition
    b. Background
    c. Terms commonly used
    d. Major categories
    e. Guidelines for fieldwork
- Answer questions.

UNIT 5 emt-p

POISONING AND OVERDOSE

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the follcwing:

5.1.1.K The student should be able to recall four routes in which a patient may be exposed to a poison.

5.1.2.K Given a list of definitions, the student should be able to select the one that best defines poisoning.

5.1.3.K Given a list of statements, the student should be able to select the one that best describes the difference between poisoning and overdose.

5.1.4.K Given a list of procedures, the student should be able to select the one that best describes the procedure for using the poison control center as a resource in cases of poisoning and overdose.

5.1.5.K Given a list of poisons, the student should be able to match the poison with the usual route of exposure, that is, absorbed, inhaled, ingested, injected.

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

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5.1.6.K Given a patient with suspected poisoning, the student should be able to recall five questions that must be asked during the initial evaluation of the patient.

5.1.7.K Given a patient with suspected poisoning, the student should be able to recall the procedure for doing a physical examination on the patient.

5.1.8.K Given a description of a patient, vital signs, and a description of the situation, the student should be able to determine if the poison was inhaled, injected, ingested, or absorbed.

5.1.9.K Given a description of a patient who has ingested a poison and a list of activities, the student should be able to select those activities that are appropriate treatments for this patient.

5.1.10.K Given a list of descriptions describing patients in various conditions who have ingested various identified poisons, the student should be able to identify those patients in whom vomiting should not be induced.

5.1.11.K Given a list of functions, the student should be able to select the one that best defines the function of:

- Syrup of ipecac
- Activated charcoal

5.1.12.K Given a list of procedures including the use of syrup of ipecac and activated charcoal to induce vomiting, the student should be able to select the one that best describes the procedure for the administration of each.

5.1.13.K Given a description of a patient who has had a poison injected into his body (i.e., insect bites, drug overdose) and a list of activities, the student should be able to select those activities that are appropriate treatments for this patient.

5.1.14.K Given a description of a patient who has inhaled a poison, and a list of activities, the student should be able to select

those activities that are appropriate treatments for this patient.

5.1.15.K Given a description of a patient who has absorbed a poison, and a list of activities, the student should be able to select those activities that are appropriate for this patient.

5.1.16.K Given a list of common household products, the student should be able to match the product to one of the following groups:

- Strong acid
- Strong alkali
- Petroleum product
- Methyl alcohol
- Toluene

5.1.17.K Given a list of signs and symptoms, vital signs, and a description of a patient and a list of activities, the student should be able to determine if the patient has been exposed to:

- Strong acid or strong alkali
- Petroleum products
- Methyl alcohol
- Freon
- Toluene
- Carbon monoxide

5.1.18.K Given the description of a patient who has been exposed to one of the household products presented in Objective 5.1.16.K, and a list of activities, the student should be able to select the activities that are appropriate treatments for the patient.

5.1.19.K Given a list of statements, the student should be able to select the one that best describes the complications of aspirating ingested petroleum products.

5.1.20.K Given a list of statements, the student should be able to select the one that best describes the purpose of adminis-

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tering whiskey (ethyl alcohol) to a patient who has ingested methanol.

5.1.21.K Given a list of statements, the student should be able to select the one that best describes the mechanism by which carbon monoxide exerts its poisonous effect.

5.1.22.K Given a list of descriptions portraying types of poisonous snakes, the student should be able to state whether the snake being described is a pit viper or a coral snake.

5.1.23.K Given a list of statements describing the effect of the venom of either the pit viper or coral snake, the student should be able to select the statement that best describes the effect of the venom on the body.

5.1.24.K Given a list of signs and symptoms, the student should be able to select those signs and symptoms that are easily related to poisonous snakebites.

5.1.25.K Given a patient with suspected poisonous snakebite and a list of treatments, the student should be able to select the most appropriate treatment for the patient.

5.1.26.K Given a list of statements describing the procedure for sucking the poison out of a venomous bite, the student should be able to select the most correct procedure.

5.1.27.K Given a patient with a poisonous snakebite and a list of statements, the student should be able to select the statement that best describes the reason the patient should not receive alcohol by mouth.

5.1.28.K Given a description of a spider or an insect and a list of labels, the student should be able to select the correct label for the insect or spider described.

5.1.29.K Given an insect or spider and a list of statements, the student should be able to select the statement that best describes the reaction to a bite from the insect or spider.

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5.1.30.K Given a list of signs and symptoms and a specific insect or spider, the student should be able to select signs and symptoms associated with the bite of the insect or spider.

5.1.31.K Given a patient with a suspected insect or spider bite and a list of treatments, the student should be able to select the most appropriate treatment for the patient.

5.2.1.K Given a description of a patient with a suspected drug overdose, the student should be able to list five questions that should be asked when developing a history of the patient.

5.2.2.K Given a list of terms that are street jargon for common drugs used by drug abusers, the student should be able to label each term with its appropriate name (i.e., smack—heroin).

5.2.3.K Given a list of signs and symptoms, the student should be able to match the signs and symptoms with the appropriate classification of drugs. The classification of drugs will include:

- Hallucinogens
- Narcotics
- Stimulants
- Depressants
- Other drugs, including aspirin and marijuana

5.2.4.K Given a list of physiologic actions (e.g., depresses central nervous system) and the list of drug classifications found in Objective 5.2.3.K, the student should be able to match the physiological action with the classification of drug.

5.2.5.K Given a description of a patient, including vital signs, the student should be able to identify the classification of drug on which the patient has overdosed.

5.2.6.K Given a patient, who has overdosed on one of the classifications of drugs listed in Objective 5.2.3.K, and a list of

activities, the student should be able to select the activities that describe the appropriate treatment for the patient.

NOTES

Instructor Activities

Assign the material referred to below during the class period immediately before beginning the unit:

- Chapter 10, Unit 5, of the *Text*
- Knowledge objectives for this unit

Prepare a lecture session following the content outline on page X-37. Provide any slides, overlays, or diagrams. Include the following activities:

- Review the knowledge objectives.
- Inform the students there will be no demonstrations or practice sessions in this unit.
- When describing the different routes of poisoning (i.e., inhalation, ingestion), develop lists on the chalkboard comparing the signs and symptoms and treatment for each route.
- Have the students give examples of the different types of household products that are commonly poisons.
- Inform students a discussion of snakebites and insect bites will be included in this unit because they are a source of injected poison. The instructor should modify and expand this section to be relevant to specific locale.
- (Optional) Arrange a tour of the local poison control center.
- Have the students develop a list of street terms for the drugs to be discussed in this unit.
- Provide samples of the various drugs that will be most commonly abused to provide the student practice in identifying the various drugs. Also familiarize the students with the method of identifying unknown drugs using the *Physicians' Desk Reference* (PDR).
- Present case studies as to the actions, signs and symptoms, and treatment of patients overdosed on the drugs being discussed.
- Ask for questions following the presentation.

Test the students upon completion of the entire module, using the objectives as a guide.

Equipment and Materials

Equipment—Educational

Chalkboard and chalk
Pictures—common poisonous snakes and insects

Equipment—Medical

Samples of the various drugs abused
Physicians' Desk Reference

Materials

Knowledge objectives (optional)
Text

Content Outline

Introduction

- Review the knowledge objectives.
- Present the topics to be discussed:

—Poisoning
  a. Description
  b. Role of poison control center
  c. Patient assessment
  d. General management
  e. Specific poisoning problems
— Overdoses
  a. Description
  b. Nomenclature
  c. Patient assessment
  d. General management
  e. Specific overdose problems

5.1. Poisoning

A. Description
  1. Define it as representing exposure to agents that are intrinsically harmful, for example, methyl alcohol.

NOTES

2. Point out that there is an arbitrary distinction with an overdose—it represents exposure to agents that are harmful if taken in excess, for example, aspirin.
3. Point out that it is predominantly a pediatric problem—75 percent of reported cases involve children under 5 years of age.
4. Point out that poisons enter system in four ways—give examples of each:
   a. Ingestion
   b. Inhalation
   c. Absorption
   d. Injection
5. Point out that the effect of poisons varies
   a. Some depress or stimulate the central nervous system.
   b. Toxic fumes inflame and irritate the eyes.
   c. Carbon monoxide causes asphyxiation.
   d. Alkalis or acids cause burns.

B. Poison control center (PCC)
1. Point out that it is a valuable resource.
2. Describe:
   a. Local PCC
   b. Procedure for gaining access to the PCC

C. Patient assessment
1. History—the following are needed information:
   a. What was ingested?
      (1) Take the container, sample of contents, etc.
      (2) If a plant was ingested, determine the part of plant (i.e., root, leaves, stem, flower, fruit).
   b. When was the poison ingested, or when was the patient exposed?
   c. How much was taken?
   d. Has anyone attempted to induce emesis?
   e. Has any antidote been given?
2. Examination
   a. Evaluate the vital signs.
   b. Evaluate the respiratory and circulatory functions, that is, dyspnea, Cheyne-Stokes breathing, shock.
   c. Evaluate the gastrointestinal function, that is, nausea, vomiting, diarrhea, abdominal pain.
   d. If poison was absorbed, note the following:

NOTES

(1) Irritation of skin and mucose membranes
(2) Inflammation of the eyes

e. If poison was ingested, note burns around lips, tongue, and mouth.

D. General management by source of exposure

1. Ingested poison
   a. Maintain an airway.
   b. Determine whether vomiting should be induced. Vomiting should not be induced in the following instances (describe why):
      (1) Stuporous or comatose patient
      (2) Patient with seizures
      (3) Pregnant woman
      (4) Patient with possible mycocardial infarction
      (5) Patient who ingested corrosives (strong acids or alkalis)
      (6) Patient who ingested petroleum products
      (7) Patient who ingested iodides, silver nitrate, strychnine
   c. If vomiting should be induced, do the following:
      (1) Induce vomiting.
         (a) Administer syrup of ipecac followed by water.
         (b) After vomiting, administer activated charcoal.
      (2) Place patient with head lower than hips to avoid aspiration.
      (3) Repeat syrup of ipecac if vomiting is not induced.
   d. If vomiting cannot be induced, perform gastric lavage (optional skill—discussed further in Unit 9 of this module). Patient must be fully alert and have intact gag reflex.
   e. Start an IV—dextrose in water.
   f. Draw blood samples.
   g. Monitor cardiac and respiratory activity.
   h. Manage shock.
   i. Transport.
2. Inhaled poison—for example, carbon monoxide
   a. Remove the patient from the exposure area.
   b. Maintain an airway and administer oxygen.

NOTES

c. Start an IV—dextrose in water.
d. Draw blood samples.
e. Monitor cardiac and respiratory activity.
f. Manage shock.
g. Transport.

3. Absorbed poison
   a. Flood the skin surface with water (mention lime, as an exception).
   b. Remove all clothing and jewelry from the exposed area.
   c. Cover with sterile dressing.
   d. Start an IV—dextrose in water.
   e. Draw blood samples.
   f. Monitor cardiac and respiratory activity.
   g. Manage shock.
   h. Transport.
4. Injected poison
   a. If in an extremity, do the following:
      (1) Remove jewelry.
      (2) Apply constricting bands above and below the site—stop the venous flow only.
   b. Cover with sterile dressing.
   c. Start an IV—dextrose in water.
   d. Draw blood samples.
   e. Monitor cardiac and respiratory activity.
   f. Manage shock.
   g. Transport.

E. Management of specific common poisonings
1. Strong acids (toilet bowl cleaners, rust removers)
   a. Signs and symptoms
      (1) Burns around the mouth
      (2) Container present
      (3) Patient in shock
   b. Management
      (1) Do *not* induce vomiting.
      (2) Administer as much milk of magnesia, milk, or egg white as the patient can swallow in an effort to dilute and neutralize the acid.
      (3) Start an IV—dextrose in water.
2. Strong alkalis (drain cleaner, ammonia, bleach)
   a. Signs and symptoms

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(1) Burns around the mouth
(2) Container present
(3) Patient in shock

b. Management
(1) Do *not* induce vomiting.
(2) Administer as much citrus fruit juice or vinegar and water as the patient can swallow.
(3) Start an IV—dextrose in water.

3. Petroleum products (kerosene, lighter fluid, gasoline, furniture polish)
a. Signs and symptoms
(1) Respiratory distress, that is, pulmonary edema, cyanosis
(2) CNS disorder—convulsions, coma
(3) Hypoglycemia—common
b. Management
(1) Do *not* induce vomiting.
(2) Administer humidified oxygen.
(3) Start an IV—dextrose in water.
(4) Administer glucose.
(5) Monitor cardiac activity.

4. Methyl alcohol (methanol, wood alcohol)
a. Signs and symptoms
(1) Alcohol odor on the breath
(2) Patient hyperpneic and hypotensive
(3) Shock
b. Management
(1) If the patient is conscious and alert, do the following:
(a) Induce emesis.
(b) Administer at least 2 ounces of 80-proof whiskey per hour to inhibit the metabolism of methanol.
(2) Start an IV—dextrose in water.
(3) Administer bicarbonate.
(4) Administer oxygen.
(5) Monitor cardiac activity.

5. Freon (refrigerant, aerosol propellant)
a. Signs and symptoms
(1) Alcohol intoxication behavior
(2) Cardiac dysrhythmias

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b. Management
(1) Remove from exposure.
(2) Administer oxygen.
(3) Start an IV—dextrose in water.
(4) Monitor cardiac activity.

6. Toluene (glue, cleaning fluids, paint thinner, nail polish remover)
a. Signs and symptoms
(1) Alcohol intoxicationlike syndrome
(2) Hallucinations
b. Management
(1) Remove from exposure.
(2) Administer oxygen.
(3) Provide verbal reassurance.

7. Carbon monoxide (automobile, home-heating devices)—toxicity due to affinity for red blood cells—suffocation at cellular level
a. Signs and symptoms
(1) Headache, roaring in the ears
(2) Confusion, inability to think clearly
(3) Convulsions or coma
(4) Rapid bounding pulse
(5) Dilated pupils
(6) Cyanosis or pallor
(7) Pulmonary edema
b. Management
(1) Remove from exposure.
(2) Administer 100-percent oxygen.
(3) Monitor respiratory and cardiac activity.
(4) Transport immediately.

F. Snakebites and insect bites
1. Snakebites
a. Types of snakes
(1) Pit viper, for example, rattlesnakes, copperheads, cottonmouths, mocassins
(a) Characteristics
(i) Deep pit by each nostril
(ii) Fangs
(iii) Thick body
(iv) Triangular head
(v) Slitlike pupils

NOTES

(b) Venom
(i) Toxic to tissue
(ii) Cause destruction of skin and muscle
(iii) Can cause destruction of red blood cells

(2) Coral snakes
(a) Characteristics
(i) Brightly colored—bands of red, black, yellow
(ii) Long and thin body
(iii) No long fangs

(b) Venom
(i) Affects the nervous system
(ii) Causes CNS depression

b. Signs and symptoms
(1) Instantaneous pain upon injection, progressive edema and ecchymosis
(2) Nausea and vomiting
(3) Bradycardia or tachycardia
(4) Hypotension
(5) Dizziness
(6) Convulsions, delirium, coma

c. General treatment
(1) Remove rings and bracelets.
(2) Apply constricting bands 2 inches above and below the site—impede venous flow only.
(3) Suck out the poison (discuss procedure)
(a) Make lengthwise incision—less than one inch in length through fang marks.
(b) Suck out using mouth or suction device in snakebite kit.
(c) Remember this procedure is useless if not performed within the first few minutes.
(4) Immobilize the injection site and apply ice if possible.
(5) Identify the snake.
(6) Give nothing by mouth, especially alcohol.
(7) Start an IV.
(8) Treat for shock.
(9) Transport.

2. Insect bites or stings

NOTES

a. Types of spiders—describe each and its toxicity
   (1) Black widow
   (2) Brown recluse
   (3) Running spider
b. Types of insects—describe each and its toxicity
   (1) Scorpions
   (2) Fire ants
   (3) Hymenoptera (bees, wasps, hornets)

3. Signs and symptoms
   a. Similar to snakes
   b. Summarized in *Text*—review
4. Management
   a. Similar to snakebite
   b. Summarized in *Text*—review

5.2. Overdose

A. Point out that technically it is the same as poisoning.
B. Point out that history taking is very similar to that for poisoning—must determine:
   1. What was taken?
   2. When was it taken?
   3. How much was taken?
   4. Were there any other ingestants (other drugs, alcohol)?
   5. What have bystanders done to correct the problem (street cures, that is, cold shower, drug administration)?
C. Specific classifications
   1. Hallucinogens
      a. Nomenclature
         (1) LSD: acid, cubes, sugar, pearly gates, heavenly blue, royal blue, wedding bells
         (2) STP: serenity, tranquility, peace, dom
      b. Action—signs and symptoms
         (1) Patient very excited, sometimes panic stricken
         (2) Visual hallucinations
         (3) Unusual physical sensations
         (4) Psychotic reaction—lost from reality
         (5) Reaction psychological rather than physiological
      c. Management
         (1) Verbal reassurance

NOTES

(2) Patient must be transferred to a quiet area

2. Narcotics
   a. Nomenclature
      (1) Heroin: horse, harry, smack, stuff, doogie, oil, boy, "H"
      (2) Morphine: unkie, Miss Emma, hard stuff
      (3) Also included: methadone, codeine, demerol, propoxyphene (Darvon)
   b. Action—signs and symptoms
      (1) Point out that they act on the central nervous system.
      (2) Discuss marked respiratory depression.
      (3) Discuss hypotension.
      (4) Discuss possible coma.
      (5) Discuss pinpoint pupils.
   c. Management
      (1) Maintain an airway.
      (2) Intubate if protective reflexes are absent.
      (3) Administer oxygen.
      (4) Initiate an IV—dextrose in water.
      (5) If the patient is comatose, administer glucose.
      (6) Upon physician's order, administer Narcan—describe action, dose, and method of administration.
3. Stimulants ("uppers")
   a. Nomenclature
      (1) Benzedrine (amphetamine): bennie, genzies, peaches, roses, cartwheels
      (2) Dexedrine: hearts, oranges, dexies, footballs
      (3) Methedrine: speed, bomita
      (4) Cocaine: "C," coke, Corine, Carrie, cholly, happy dust, heaven dust, snow, stardust, girl, Bernice, Burese, flake, gold dust
   b. Action—signs and symptoms
      (1) Point out that they act as central nervous system stimulants.
      (2) Point out that the patient appears wild-eyed and excited.
      (3) Point out that the patient is excited, then "crashes"—prolonged period of sleep.
      (4) Discuss anorexia.

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(5) Discuss tachycardia.
(6) Discuss hypertension.
(7) Discuss diaphoresis.
(8) Point out that the pupils are dilated.
(9) Point out that the patient may exhibit paranoia or hallucinations.
(10) Point out that the patient may be violent.

c. Management
(1) If the patient is violent, summon police assistance.
(2) Provide verbal reassurance.
(3) Provide the patient with place to "crash."
(4) Monitor respiratory and cardiac activity.

4. Depressants ("downers")
a. Nomenclature
(1) Nembutal (phenobarbital): yellow jackets, yellows, nembies
(2) Amytal: blue devils, bluebirds, blue heaven
(3) Seconol: red birds, red devils, pinks
(4) Chloral hydrate: Mickey Finn, Mickey, Peter

b. Action—signs and symptoms
(1) Point out that they cause depression of the major body systems—CNS and respiratory and cardiovascular systems.
(2) Point out that the patient usually appears unkempt, lethargic.
(3) Point out that the patient may be comatose.
(4) Point out that the pupils are fixed and dilated.
(5) Point out that respiration is shallow—Cheyne-Stokes breathing.
(6) Discuss decreased blood pressure.
(7) Discuss shock syndrome.

c. Management
(1) Maintain an airway.
(2) Intubate, if protective reflexes are absent.
(3) Administer oxygen.
(4) Initiate an IV—normal saline or plasmanate.
(5) Upon the physician's order, administer sodium bicarbonate.
(6) Monitor cardiac activity.
(7) Avoid stimulants—coffee, IV stimulant medication.

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5. Other abused drugs
   a. Marijuana
      (1) Nomenclature: pot, tea, weed, Mary Jane, grass, love weed, reefer, joint, hay, hash, joy smoke, stinkweed
      (2) Action—signs and symptoms
         (a) Point out that it acts on the central nervous system as a depressant.
         (b) Point out that the patient is initially stimulated; this period is usually followed by a period of depression.
         (c) Point out that perception is distorted.
         (d) Point out that the person loses contact with reality.
      (3) Management
         (a) Provide verbal reassurance.
         (b) Monitor respiratory and cardiac activity.
   b. Aspirin (salicylate)
      (1) Primarily a pediatric problem
      (2) Action
         (a) Point out that an overdose causes profound metabolic acidosis—precipitates hyperventilation in an attempt to compensate.
         (b) Point out that, eventually, the patient tires, respirations are depressed, and respiratory acidosis is added to metabolic acidosis.
      (3) Signs and symptoms
         (a) Hyperpnea, tachypnea
         (b) Fever
         (c) Diaphoresis
         (d) Nausea and vomiting
         (e) Confusion or delirium
         (f) Convulsions
         (g) Coma
      (4) Management
         (a) If the patient is conscious, induce vomiting with ipecac.
         (b) Administer activated charcoal.
         (c) Initiate an IV—dextrose in water.
         (d) Monitor the patient's temperature.
         (e) Monitor respiratory and cardiac activity.

NOTES

Summary

- Review the knowledge objectives.
- Review the topics discussed:

  — Poisoning
    a. Description
    b. Role of poison control center
    c. Patient assessment
    d. General management
    e. Specific poisoning problems
    f. Snakebites and insect bites
  — Overdoses
    a. Description
    b. Nomenclature
    c. Patient assessment
    d. General management
    e. Specific overdose problems

- Ask for questions.

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UNIT 6

ACUTE ABDOMEN

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

6.1.1.K Given a diagram of the abdomen illustrating the various organs and their structure, and a list of the organs/structures, the student should be able to match the organ/structure with its position on the diagram. The organs/structures to be located will include:

- Esophagus
- Stomach
- Small intestine
- Large intestine
- Appendix
- Rectum
- Gallbladder
- Liver
- Spleen
- Pancreas
- Kidneys
- Adrenal glands
- Bladder
- Peritoneum

6.1.2.K Given a list of the organs/structures listed in Objective 6.1.1.K, the student should be able to state in which quadrant of the abdomen the organ/structure is located.

6.1.3.K Given a list of functions and the list of organs/structures listed in Objective 6.1.1.K, the student should be able to

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

select the statement that best describes the primary function of each organ/structure in the list.

NOTES

6.2.1.K Given a description of a patient with a suspected abdominal disorder, the student should be able to recall (from memory) the information that should be emphasized when gathering a patient history.

6.2.2.K Given a description of a patient with a suspected abdominal disorder, the student should be able to recall (from memory) and list the things the Emergency Medical Technician (EMT) should observe when examining the patient. A correct response will include:

- General appearance of the patient, that is, position of the patient, expressions of pain
- Respiratory rate and use of abdominal muscles during respirations
- Obvious distention

6.2.3.K Given a list of statements, the student should be able to select the statement that best describes the purpose for auscultating the abdomen.

6.2.4.K Given a list of statements describing the procedure for auscultation of the abdomen of a communicative patient, the student should be able to select the statement that describes the best procedure to be used.

6.2.5.K Given a list of statements, the student should be able to select the one that best describes the purpose of palpation of the abdomen.

6.2.6.K Given a list of statements describing the procedure for palpation of the abdomen of a communicative patient, the student should be able to select the statement that describes the best procedure to be used.

6.3.1.K Given a list of descriptions of a patient with a suspected abdominal disorder, including the area and type of pain being experienced, the student should be able to recall

(from memory) and list the possible problem or organ(s) involved. (Note: For this objective, it is not necessary for the student to be able to determine the specific internal problem, but rather, e.g., that the problem is in the upper left quadrant, it is a trauma-related problem, and it indicates possible damage to the spleen.)

6.3.2.K Given a description of the patient with a suspected abdominal disorder, the student should be able to specifically identify the following disorders:

- Peritonitis
- Ruptured aortic aneurysm

6.3.3.K Given a description of a patient with a suspected abdominal disorder, including the patient's vital signs, and a list of activities, the student should be able to select the activity (treatment) that is most appropriate.

6.3.4.K Given a list of statements, the student should be able to select the one that best describes the necessity for fluid volume replacement for a patient with suspected abdominal disorder.

Instructor Activities

Assign the material referred to below during the class period immediately prior to beginning the unit:

- Chapter 10, Unit 6, of the *Text*
- Knowledge objectives for this unit

Prepare a lecture session following the content outline on page X-53. Include the following:

- Review the knowledge objectives for this unit.
- Inform the students there will be no demonstrations or practice sessions in this unit.
- When presenting the overview of the abdominal anatomy, use an anatomical manikin, illustrations, or a student as a model to

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illustrate the relative location of each organ/structure described.

- For each organ discussed, present a brief description of the primary function of each organ/structure.
- Review the various steps of patient assessment, including a demonstration of auscultation and palpation of the abdomen. Both of these skills have been presented previously, but should be included as a review.
- Note that when the pathophysiology of abdominal disorders (by structure), Subunit 6.3, is presented, the level of detail is left to the discretion of the instructor. The student is not required to be able to perform a differential diagnosis of abdominal problems, but is required to identify specific problems and treat them, including hypotension. The material listed in the content outline need be presented for information only, if at all.
- Place emphasis on the recognition of an abdominal aortic aneurysm.
- Review the principles of fluid replacement and the application of the Military Anti-Shock Trousers as it relates to abdominal disorders.
- Present case studies, completion of the material presented in the content outline, that include the signs and symptoms, diagnosis, and treatment of patients with abdominal disorder.
- Ask for questions following the presentation.

Test the students upon completion of the entire module, using the objectives as a guide.

Equipment and Materials

Equipment—Educational

Anatomical manikin
Chalkboard and chalk

Equipment—Medical

Stethoscope

Materials

Knowledge objectives (optional)
Text

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References

Miller, Robert J. *Textbook of Basic Emergency Medicine.* St. Louis, Mo.: C. V. Mosby Company, 1975.

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Content Outline

Introduction

- Review the knowledge objectives.
- Introduce the topics to be discussed:

  — Anatomy of the abdomen
    a. Boundaries of abdomen
    b. Hollow organs
    c. Solid organs
  — Patient assessment
  — Pathophysiology and management of abdominal disorders (by organ)

- Purpose—in most instances, abdominal disorders cannot be diagnosed or treated in the field; the following is an attempt to present an overview of abdominal disorders

6.1. Anatomy of the abdomen

A. Use an anatomical manikin or student to illustrate the relative location of each part/organ described.
B. Briefly discuss the primary function of each of the following:
   1. Boundaries of the abdomen
      a. Anterior
         (1) Lateral abdominal muscles
         (2) Rectus abdominis muscles
      b. Posterior
         (1) Psoas muscles
         (2) Quadratus lumborum muscles
         (3) Spine
      c. Lateral
         (1) Lateral abdominal muscles
         (2) Ribs

d. Superior
   (1) Thoracic diaphragm
   (2) Ribs
e. Inferior
   (1) Pelvic diaphragm
   (2) Pelvic girdle

2. Hollow organs—briefly describe the locations and primary functions.
   a. Esophagus
   b. Stomach
   c. Small intestine
      (1) Duodenum
      (2) Jejunum
      (3) Ileum
   d. Large intestine
      (1) Ascending colon
      (2) Transverse colon
      (3) Descending colon
   e. Appendix
   f. Rectum
   g. Gallbladder
   h. Common bile duct
   i. Ureters
   j. Urinary bladder
   k. Great vessels
      (1) Aorta
      (2) Inferior vena cava
3. Solid organs—briefly describe the locations and primary functions.
   a. Liver
   b. Spleen
   c. Pancreas
   d. Kidneys
   e. Adrenal glands

NOTE: Male genitalia are discussed in Unit 7 of this module. Female genitalia are discussed in Module XI.

6.2. Patient assessment

A. Discuss patient history. Emphasize the importance of the history.

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1. Pain
   a. Location
   b. Type—sharp versus mild, steady
   c. Positions that alleviate pain
2. Bowel movements
3. Nausea and vomiting

B. Discuss inspection.
1. Note the general appearance of the patient.
   a. Position of the patient
      (1) Peritonitis—motion usually painful
      (2) Crampy pain—patient is restless, characteristic of kidney stone
   b. Facial expressions that indicate pain or shock
2. Determine the respiratory rate.
3. Determine if there is any obvious distention, that is, a hernia.

C. Discuss the evaluation of vital signs.
1. Pulse
2. Blood pressure
3. Respirations
4. Reduced circulation may indicate an internal problem.

D. Discuss auscultation.
1. Discuss the three categories of bowel sounds and describe each category of sound:
   a. Absent
   b. Present/normal
   c. Present/obstructed
2. Discuss technique.
   a. Auscultate each quadrant.
   b. Allow at least 30 seconds per quadrant.
   c. Demonstrate procedure on a patient.

E. Discuss palpation.
1. Determine the area of pain.
2. Palpate each quadrant, being sure to palpate the quadrant of pain last.
3. Describe and demonstrate on a student the technique of palpation.
   a. Point out that an EMT should discern abnormal contours.
   b. Discuss gentle palpation—observe for:
      (1) Diffuse masses
      (2) Pulsations

NOTES

(3) Areas of tenderness
(4) Muscular spasm
(5) "Voluntary guarding"

c. Discuss deep palpation.

F. Point out that upon completion of assessment, an EMT should:

1. Assimilate a patient history and examination results
2. Report all findings to the medical command

6.3. Pathophysiology of abdominal disorders (by organ)

A. Esophagus

1. Esophagitis
   a. Discuss inflammation of the esophagus.
   b. Point out that it results from a reflux of gastric acid into the esophagus (regurgitation).
   c. Point out that it is more common in the elderly, in the obese, and in women.
   d. Discuss signs and symptoms:
      (1) Burning substernal pain
      (2) Difficulty in swallowing
   e. Discuss treatment—no emergency treatment is needed.

2. Esophageal hemorrhage
   a. Define it as a tear in the esophagus or a rupture of esophageal veins.
   b. Point out that it is usually present secondary to prolonged vomiting or increased pressure in esophageal veins.
   c. Discuss signs and symptoms:
      (1) Severe vomiting, including blood
      (2) Shock—hypovolemia
   d. Discuss treatment:
      (1) Maintain an airway—prevent aspiration.
      (2) Replace fluid lost through vomiting and hemorrhage.

3. Esophageal perforation
   a. Point out that it is caused by ingestion of a foreign body, caustic substance, or forceful vomiting. It may also be caused by an esophageal obturator airway.

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b. Discuss the signs and symptoms:
   (1) Severe substernal and midline thoracic back pain
   (2) Fever
   (3) Difficulty in swallowing
   (4) Dyspnea
   (5) Subcutaneous emphysema
   (6) Shock
c. Discuss treatment:
   (1) Replace the fluid volume.
   (2) Maintain an airway.

B. Stomach
1. Gastritis
   a. Point out that it is an inflammation of the stomach.
   b. Point out that it is the result of ingestion of spicy foods or alcohol.
   c. Discuss the signs and symptoms:
      (1) Epigastric pain
      (2) Diapheresis
      (3) Nausea
      (4) Sometimes bloody vomiting (hematemesis)
   d. Discuss the treatment.
      (1) Usually, antacids
      (2) If shock is present, fluid replacement
2. Gastric hemorrhage
   a. Point out that it is due to gastritis or ulcers.
   b. Discuss the signs and symptoms:
      (1) Previous history of ulcers
      (2) Black or bloody stools
      (3) Vomiting
      (4) Diarrhea
   c. Discuss the treatment—fluid replacement
3. Gastric perforation
   a. Point out that it is usually a result of a peptic ulcer.
   b. Discuss the signs and symptoms:
      (1) Severe epigastric pain
      (2) Previous history of a peptic ulcer
      (3) Shock, due to hypovolemia
      (4) Involuntary muscle spasm
      (5) Patient lies still
      (6) Little abdominal movement during respirations
   c. Discuss the treatment—fluid replacement.

4. Gastric outlet (duodenal) obstruction
    a. Point out that it is usually associated with peptic ulcer disease.
    b. Point out that vomiting is present.
    c. Point out that it is similar to gastric perforation.
    d. Discuss treatment—fluid replacement, if necessary.

C. Small and large bowel
1. Inflammation
    a. Point out that it is most commonly produced by viruses, bacterial infection, or parasites.
    b. Discuss the signs and symptoms:
        (1) Nausea and vomiting
        (2) Crampy abdominal pain
        (3) Diarrhea
        (4) Muscle cramps
    c. Discuss treatment—fluid replacement, if necessary.
    d. Discuss specific problems.
        (1) Appendicitis
            (a) Point out that it is one of the most common surgical emergencies.
            (b) Point out that the most noticeable sign is tenderness and muscle spasm in right lower quadrant.
            (c) Point out that no emergency treatment is required.
        (2) Diverticulitis
            (a) Point out that it is pouching in the wall of the colon—allows a protrusion of the innermost lining.
            (b) Point out that the pouch can be a source of bleeding.
            (c) Point out that it causes pain in lower left quadrant.
            (d) Point out that no treatment is necessary.
2. Bowel obstruction
    a. Point out that it is caused by:
        (1) Strangulated inguinal hernia
        (2) Tumors
        (3) Adhesions from previous surgery
    b. Discuss signs and symptoms
        (1) Crampy pain

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(a) Periumbilical area
(b) Suprapubic area
(2) Nausea and vomiting
(3) Abdominal distention
(4) Absence of bowel sounds

c. Point out that no immediate treatment is required.

3. Hemorrhage
   a. Point out that it is secondary to tumors or inflammation.
   b. Point out that there is diarrhea.
   c. Point out that there is blood in the stool.
   d. Point out that pain is often present—no immediate treatment.
4. Evisceration (review Module VIII)
   a. Point out that it is a protrusion of abdominal contents.
   b. Point out that it is primarily related to severe trauma.
   c. Discuss signs and symptoms:
      (1) Protruding abdominal organ—usually the intestine
      (2) Patient in shock
   d. Discuss the treatment:
      (1) Cover the evisceration with a nonadherent, moist, sterile dressing.
      (2) Replace fluid.
      (3) Do *not*:
         (a) Reinsert abdominal contents
         (b) Flush with sterile water

D. Gallbladder and bile ducts
   1. Inflammation (cholecystitis)
      a. Point out that it is a common source of abdominal pain.
      b. Discuss the signs and symptoms:
         (1) Crampy right upper quadrant or epigastric pain
         (2) Pain radiating to the tip of the right scapula
         (3) Nausea and vomiting
         (4) Tenderness in the upper right quadrant
      c. Point out that no emergency treatment is necessary.
   2. Obstruction
      a. Point out that it is usually caused by gallstones.

NOTES

b. Discuss signs and symptoms
   (1) Crampy pain in upper right quadrant
   (2) Jaundice
   (3) Nausea and vomiting
c. Point out that no emergency treatment is necessary.

E. Urinary bladder
1. Inflammation
   a. Point out that it is usually a bacteria-oriented problem.
   b. Discuss signs and symptoms
      (1) Burning or discomfort on urination
      (2) Cloudy urine
      (3) Hematuria
   c. Discuss the treatment—none.
2. Perforation
   a. Point out that it is usually secondary to trauma.
   b. Point out that it is associated with pelvic fractures or penetrating wounds.
   c. Discuss the signs and symptoms:
      (1) Evidence of trauma
      (2) Hematuria
   d. Discuss the treatment—in case of shock, fluid replacement.
3. Obstruction
   a. Point out that it is caused by prostatic enlargement, structures, or stones.
   b. Discuss the signs and symptoms:
      (1) Inability to void
      (2) Steady suprapubic pain
      (3) Large, palpable mass in suprapubic area
   c. Discuss treatment:
      (1) Emergent—none
      (2) Eventual—catheterization

F. Ureters—obstruction
1. Point out that it is generally caused by a uretal stone.
2. Discuss the signs and symptoms:
   a. Acute crampy flank pain—radiates through lower quadrant on affected side
   b. Restlessness
   c. Hematuria
   d. Palpation of involved kidney may cause severe pain
3. Discuss the treatment—none.

NOTES

G. Great vessels

1. Hemorrhage
   a. Point out that spontaneous hemorrhage from the inferior vena cava usually does not occur.
   b. Discuss abdominal aortic aneurysm.
      (1) Point out that it is a complication of atherosclerotic vascular disease.
      (2) Discuss weakening of the wall of the aorta—causes marked bulging.
      (3) Discuss the signs and symptoms—upon rupture:
         (a) Low back pain, which spreads to the aorta
         (b) Pain on bending over
         (c) Signs of shock
         (d) Abdomen flat or distended
         (e) Upon palpation, pulsatile mass noted—palpate laterally
      (4) Discuss the treatment:
         (a) Fluid replacement
         (b) Application of Military Anti-Shock Trousers (MAST)
2. Perforation
   a. Point out that it is usually related to trauma.
   b. Point out that the signs and symptoms and treatment are similar to those in hemorrhage.
3. Obstruction
   a. Point out that it usually occurs in patients with arteriosclerotic heart disease.
   b. Discuss the signs and symptoms:
      (1) Pain in the area below the obstruction
      (2) Pallor of the lower extremities
      (3) Paresthesia
      (4) Paralysis
      (5) No pulse in the involved part
   c. Point out that there is usually a period of 4 hours from occlusion to time when irreversible damage is done.
   d. Discuss the treatment—none in the field.

H. Liver

1. Inflammation (hepatitis)
   a. Point out that it is commonly caused by viral infection or alcoholic insult.

NOTES

b. Discuss the signs and symptoms:
   (1) Yellow coloring of the sclerae
   (2) Darkening of the urine, light-colored stools
   (3) Malaise
   (4) Fatigue
   (5) Jaundice of the skin
   (6) Edema of the lower extremities
c. Discuss the treatment—none.

2. Hemorrhage
   a. Point out that it is generally trauma related.
   b. Point out that it is a life-threatening problem because of massive internal hemorrhage.
   c. Discuss the signs and symptoms:
      (1) Evidence of trauma—epigastrium, upper right quadrant
      (2) Shock
   d. Discuss the treatment:
      (1) Fluid replacement
      (2) Application of the MAST

I. Spleen
   1. Point out that the spleen serves a limited function.
   2. Discuss hemorrhage.
      a. Point out that it is secondary to trauma in the upper left quadrant.
      b. Point out that bleeding can be massive.
      c. Discuss the signs and symptoms:
         (1) Generalized abdominal pain
         (2) Hypotension
         (3) Possible referred pain in the left shoulder
      d. Discuss the treatment:
         (1) Fluid replacement
         (2) Application of the MAST

J. Pancreas
   1. Inflammation (pancreatitis)
      a. Point out that it is commonly caused by alcohol abuse and gallstones.
      b. Discuss signs and symptoms:
         (1) Moderate to severe midepigastric pain
         (2) Nausea and vomiting
         (3) Hypotension

NOTES

(4) Abdomen often rigid upon palpation

c. Discuss the treatment—fluid replacement, if hypotensive.

2. Hemorrhage

a. Point out that trauma to the pancreas is uncommon.

b. Point out that hemorrhage and hypotension may occur.

c. Point out that fluid replacement is the correct treatment, if necessary.

K. Kidneys

1. Inflammation (pyelonephritis)

a. Point out that it is caused by bacterial infection.

b. Discuss the signs and symptoms:

(1) Flank pain

(2) Nausea and vomiting

(3) Fever

(4) Tenderness—costovertebral angle

c. Discuss the treatment—none.

2. Hemorrhage

a. Point out that it is secondary to trauma.

b. Point out that it can be a life-threatening problem.

c. Discuss the signs and symptoms:

(1) Visible signs of trauma—bleeding may be minimal

(2) Hypotension

d. Discuss the treatment—fluid replacement, if necessary.

L. Peritoneum—inflammation (peritonitis)

1. Point out that it is secondary to a disorder of the abdominal organs.

2. Discuss the signs and symptoms:

a. Same symptoms as underlying problem

b. Severe abdominal pain

c. Pain is aggravated by respirations or movement

d. Respirations are usually shallow, with minimal abdominal wall movement

e. Abdominal wall is rigid

f. Rebound tenderness

g. Bowel sounds are usually absent

NOTES

3. Discuss the treatment—fluid replacement.

M. Summary

1. Most abdominal disorders cannot be treated in the field.
2. Emphasis in the field is on the following:
   a. Patient assessment
      (1) Pain
         (a) Location
         (b) Type
         (c) Alleviating factors
      (2) Nausea and vomiting present
      (3) Diarrhea present
      (4) Signs and symptoms
      (5) Recognition of:
         (a) Abdominal aortic aneurysm
         (b) Peritonitis
   b. Management (in general)
      (1) Make the patient comfortable.
      (2) If shock is present, do the following:
         (a) Replace fluid
         (b) Apply the MAST

NOTES

Summary

- Review the knowledge objectives.
- Review topics discussed:

  — Anatomy of the abdomen
    a. Boundaries of abdomen
    b. Hollow organs
    c. Solid organs
  — Patient assessment
  — Pathophysiology and management in abdominal disorders (by organ)

- Answer any questions.

UNIT 7

emt-p

GENITOURINARY PROBLEMS

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

7.1.1.K Given a diagram of the male genitourinary organs/structures and a list of the organs/structures, the student should be able to match the organ/structure with its position on the diagram. The structures to be located will include:

- Bladder
- Urethra
- Prostate gland
- External meatus
- Scrotum
- Testes

7.1.2.K Given a list of functions and a list of organ/structures listed in objective 7.1.1.K, the student should be able to select the statement that best describes the primary function of each organ/structure in the list.

7.1.3.K Given a description of a male patient with a suspected injury to the genitalia, including the patient's vital signs,

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

and a list of activities, the student should be able to select the activity (treatment) that is most appropriate.

NOTES

Instructor Activities

Assign the material listed below during the class period immediately before beginning the unit:

- Chapter 10, Unit 7, of the *Text*
- Knowledge objectives for this unit

Prepare a lecture session following the content outline on page X-67. Include the following activities during the presentation:

- Review the knowledge objectives for this unit.
- Inform the students there will be no demonstrations or practice sessions in this unit.
- Inform the students this unit deals with the male genitourinary system; the female genitourinary system is discussed in Module XI.
- When presenting an overview of the anatomy, use an illustration to present the relative location of each organ/structure described.
- Review the principles of treatment of soft-tissue injuries relative to the management of injuries to the genitalia.
- Ask for questions following the presentation.

Test the students upon completion of the entire module, using the objectives as a guide.

Equipment and Materials

Equipment—Educational

Illustration—male genitourinary system
Chalkboard and chalk

Materials

Knowledge objectives (optional)
Text

Content Outline

NOTES

Introduction

- Review the knowledge objectives.
- Introduce the topics discussed:

  — Male genitalia
    a. Anatomy and physiology
    b. Injuries to the genitalia
  — Female genitalia—will be discussed in Module XI

7.1. Anatomy of the male genitalia

A. Use an anatomical chart to illustrate the relative location of each organ/structure described.
B. Briefly discuss the function of each of the following:
   1. Organs
      a. Bladder
         (1) Location
         (2) Function
      b. Urethra
         (1) Location
         (2) Function
      c. Prostate
         (1) Location
         (2) Function
      d. External meatus
         (1) Location
         (2) Function
      e. Scrotum
         (1) Location
         (2) Function
      f. Testes
         (1) Location
         (2) Function
   2. Injuries to the genitalia
      a. Point out that injuries to the genitalia are not usually emergency problems.
      b. Point out that treatment of injuries is similar to treatment of any soft-tissue injury.

c. Discuss specific injuries:
   (1) Urethral injuries
      (a) Point out that the urethra may be severed with severe pelvic trauma.
      (b) Point out that if it is severed, patient will be unable to void.
      (c) Point out that urethral bleeding may be present.
      (d) Discuss management—for external trauma, use compression dressing.
   (2) Penile and scrotal injuries—managed similarly to any soft-tissue injuries
   (3) Testicular torsion
      (a) Point out that it is the twisting of the testicle on the spermatic cord
      (b) Point out that it occurs in boys, usually prepubertal
      (c) Point out that the testicle is swollen and tender upon palpation
      (d) Discuss treatment—none

7.2. Anatomy of the female genitalia (discussed in Module XI)

Summary

- Review the knowledge objectives.
- Review the topics discussed:

  — Male genitalia
    a. Anatomy and physiology
    b. Injuries to the genitalia
  — Female genitalia (discussed in Module XI)

- Answer any questions.

NOTES

UNIT 8 emt-p

MEDICAL EMERGENCIES IN THE GERIATRIC PATIENT

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent* of the following:

8.1.1.K Given a list of statements, the student should be able to select the one(s) that best describes special problems that may be encountered when dealing with geriatric patients.

8.1.2.K For each of the following special problems, the student should be able to list at least two reasons why it is a problem:

- Altered reaction to illness
- Eliciting a history
- Performing a physical examination

8.1.3.K Given a description of a geriatric patient, including the vital signs and significant signs and symptoms, the student should be able to select those signs and symptoms that may be misleading with respect to a correct interpretation of the situation—for example, pedal edema caused by inactivity rather than right heart failure.

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

Instructor Activities

Assign the material referred to below during the class period immediately before beginning the unit:

- Chapter 10, Unit 8, of the *Text*
- Knowledge objectives

Prepare a lecture session following the content outline below. Provide any slides, overlays, or diagrams. Include the following activities during the presentation:

- Review the knowledge objectives.
- Inform the student there will be no demonstrations or practice sessions in this unit.
- Review case studies that illustrate the geriatric patient and the signs and symptoms emphasizing variations in comparison to younger patients.
- Ask for questions following the presentation.

Test the students upon completion of the entire module, using the objectives as a guide.

Equipment and Material

Equipment—Educational

Chalkboard and chalk

Materials

Knowledge objectives (optional)
Text

Content Outline

Introduction

- Review the objectives.
- Introduce the topic of discussion—the geriatric patient.

NOTES

— Background
— Special problems
  a. Altered reaction to illness
  b. Eliciting a history
  c. Doing a physical examination
— Review of case histories.

NOTES

8.1. Geriatric patient

A. Point out that geriatric patients comprise a large number of presenting cases because:
   1. Continued improvements in overall health care increases the number of elderly
   2. Elderly are more prone to illness and injury
B. Discuss special problems when dealing with geriatric patients
   1. Altered reaction to illness
      a. Pain mechanism is depressed
      b. Temperature-regulating mechanisms depressed
      c. Mental deterioration is secondary to illness
      d. Prone to psychological disorders
      e. Thirst mechanism is depressed—causes dehydration
      f. Specific illness/injury leads to general deterioration
   2. Eliciting a history
      a. Patient may be confused or unable to remember.
      b. Patient may neglect important signs and symptoms.
      c. Hearing may be diminished.
   3. Performing a physical examination—may be difficult because:
      a. Of poor cooperation
      b. Patient tires easily
      c. Of excessive clothing
      d. Physical signs may not be significant; that is, pedal edema may indicate inactivity rather than right heart failure
C. Discuss case histories relating to geriatric patients.
   1. Myocardial infarction
   2. Congestive heart failure

Summary

- Review the objectives.
- Review the topic of discussion—the geriatric patient
  - — Background
  - — Special problems
    a. Altered reaction to illness
    b. Eliciting a history
    c. Doing a physical examination
  - — Review of case histories
- Answer any questions.

NOTES

UNIT 9*

emt-p

AQUATIC EMERGENCIES

NOTES

Knowledge Objectives

After completing this module, the student should be able to correctly respond to at least 80 percent** of the following:

9.1.1.K Given a list of statements, the student should be able to select the one that best defines the term "SCUBA" (self-contained underwater breathing apparatus).

9.2.1.K Given a list of statements, the student should be able to select the statement that best describes atmospheric pressure.

9.2.2.K Given a statement describing the depth in feet of submersion, the student should be able to recall and state the number of atmospheres of pressure experienced by a diver if submerged to that depth.

9.2.3.K Given a list of statements describing various relationships of volume and pressure at a constant temperature, the student should be able to select the statement that correctly defines the relationship.

9.2.4.K Given a list of labels, the student should be able to select

*Optional unit.

**The selection of 80 percent as a passing criterion is arbitrary and can be modified.

the label for the relationship described in Objective 9.2.3.K.

NOTES

9.2.5.K Given a diver, who is breathing compressed air at a depth of 66 feet, and a list of statements, the student should be able to select the statement that best describes the changes that would occur if the diver ascended to the surface while holding his breath.

9.2.6.K Given a list of statements, the student should be able to select the statement that best describes Henry's law.

9.2.7.K Given a list of statements, the student should be able to select the one that best describes why nitrogen bubbles form in the extracellular fluid, plasma, and other fluids within the body during a rapid ascent.

9.3.1.K Given a list of statements, the student should be able to select the one that best defines the term "squeeze."

9.3.2.K Given a list of statements, the student should be able to select the one that best describes the effect of increased pressure during descent on the gaseous and fluid areas of the body.

9.3.3.K Given a list of statements, the student should be able to select the one that best describes the effect of increased pressure during descent on the:

- Middle ear
- Nasal sinuses
- Lungs
- Gastrointestinal tract
- Airspaces next to skin (outside the body, i.e., within the mask of the diver or loculated air with the diving suit)

9.3.4.K Given a list of signs and symptoms, the student should be able to select those that relate to damage caused by increasing external pressure to the:

- Middle ear
- Nasal sinuses
- Skin

82

9.3.5.K Given a diver with suspected injury because of increasing external pressure during descent and a list of statements describing possible treatments, the student should be able to select the statement that describes the best treatment for the diver.

9.4.1.K Given a list of statements, the student should be able to select the one that best describes the effect of decreased external pressure during ascent on the gaseous and fluid areas of the body.

9.4.2.K Given a list of statements, the student should be able to select the one that best describes the effect of decreased pressure during ascent on the:

- Middle ear
- Nasal sinuses
- Lungs
- Gastrointestinal tract
- Airspaces next to skin (outside the body, i.e., within the mask of the diver or loculated air with the diving suit)

9.5.1.K Given a list of statements, the student should be able to select the one that best describes the cause of decompression sickness.

9.5.2.K Given a list of signs and symptoms, the student should be able to select the ones that are related to decompression sickness.

9.5.3.K Given a list of treatments, the student should be able to select the one that is most appropriate for the patient with decompression sickness.

9.5.4.K Given a list of statements, the student should be able to select the one that best describes the procedure for managing a patient with decompression sickness before recompression occurs.

9.6.1.K Given a list of statements, the student should be able to select the one that best describes the:

NOTES

- Cause
- Signs/symptoms
- Potential dangers
- Management of the patient

for each of the following:

- Nitrogen narcosis
- Hyperventilation
- Oxygen toxicity
- Carbon dioxide intoxication
- Carbon monoxide intoxication

9.7.1.K Given a group of pictures of aquatic animal and plant life that are hazardous to man and indigenous to the area and a list of labels, the student should be able to select the correct label for each picture.

9.7.2.K Given a picture of the label of an aquatic animal or plant life described in Objective 9.7.1.K and a list of statements, the student should be able to select the statement that best describes the potential danger of the animal or plant to man.

9.7.3.K Given a list of signs and symptoms and the labels described in Objective 9.7.1.K, the student should be able to select the signs and symptoms related to each label.

9.7.4.K Given a list of treatments, the student should be able to select the appropriate treatment for each potential danger described in Objective 9.7.2.K.

Instructor Activities

Assign the material referred to below in the class immediately before beginning the unit:

- Chapter 15, Aquatic Medical Emergencies. In Carmen W. Sproul and Patrick J. Mullaney. *Emergency Care—Assessment and Intervention.* St. Louis, Mo.: C. V. Mosby Company, 1974.

NOTES

- Chapter 14, Barotrauma. In Norman McSwain, ed. *Traumatic Surgery Outline*. Medical Examination Publishing House.

Prepare a lecture session following the content outline on page X-78. Provide any slides, overlays, or diagrams. Include the following activities during the presentation:

- Review the knowledge objectives
- Inform the students there will be no demonstrations or practice sessions in this unit.
- Present a SCUBA outfit and describe the use of various equipment.
- Review case studies to include examples of the various problems presented throughout the lecture.
- Identify aquatic animals and plant life that are indigenous to the area, and present illustrations of them to the class. Review the potential dangers of each with the students.
- Ask for questions following the presentation.

NOTE: It will be necessary to expand the content outline before presenting the unit to the class.

Test the students upon completion of the entire module using the objectives as a guide.

Equipment and Material

Equipment—Educational

Chalkboard and chalk

Materials

Knowledge objectives (optional)
Pictures (aquatic animals and plant life)
SCUBA outfit (complete set)
Traumatic Surgery Outline
Emergency Care—Assessment and Intervention

NOTES

Content Outline

NOTES

Introduction

- Review the knowledge objectives.
- Review the topics:

  — History of SCUBA
  — Background physics
  — Descent problems
  — Ascent problems
  — Decompression sickness
  — Other aspects
  — Bites and stings

9.1. History of SCUBA including:

  A. Who it affects
  B. Foreign popularity as a sport
  C. Equipment used

9.2. Physics

  A. Pressure
  B. Boyle's law
  C. Henry's law

9.3. Descent problems (increased external pressure)

  A. Middle ear
  B. Nasal sinuses
  C. Lungs
  D. Gastrointestinal tract
  E. Airspaces next to the skin

9.4. Ascent problems (decreased external pressure)

  A. Middle ear
  B. Nasal sinuses
  C. Lungs

D. Gastrointestinal tract
E. Airspaces next to the skin

9.5. Decompression sickness

9.6. Other aspects

A. Nitrogen narcosis
B. Hyperventilation
C. Oxygen toxicity
D. CO_2 intoxication
E. Carbon monoxide intoxication

9.7. Stings and envenomations

Summary

- Review the topics.
- Ask for questions.

NOTES

UNIT 10 emt-p

TECHNIQUES OF MANAGEMENT

NOTES

Knowledge Objectives

After completing this module the student should be able to correctly respond to at least 80 percent* of the following:

10.1.1.K Given a list of statements, the student should be able to select the one that best defines the purpose of nasogastric tube insertion.**

10.1.2.K Given a list of activities, the student should be able to select the activity that should be performed before inserting a nasogastric tube in a comatose patient.**

10.1.3.K Given a list of Levin tube sizes (No. 16 French), the student should be able to select the most appropriate size for an adult and a child.**

10.1.4.K Given a list of equipment, the student should be able to select the equipment needed to insert a nasogastric tube and describe the primary use for each.

10.1.5.K Given a list of procedures, the student should be able to select the one that is most correct for the insertion of a nasogastric tube.

*The selection of 80 percent as a passing criterion is arbitrary and can be modified.

**Optional skill.

10.1.6.K Given a list of activities, the student should be able to select the most appropriate activity for determining whether the tip of the nasogastric tube is in the stomach.

10.1.7.K Given a list of possible complications when inserting a nasogastric tube, and list of procedures, the student should be able to select the procedure that is most appropriate for relieving the complication.

10.2.1.K Given a list of statements, the student should be able to select the one(s) that best describes the indications for the catheterization of the urinary bladder.

10.2.2.K Given a list of equipment, the student should be able to select the equipment necessary for catheterizing the urinary bladder and to describe the primary use for each.

10.2.3.K Given a list of procedures, the student should be able to select the one that is most appropriate for catheterizing the male urinary bladder.

10.2.4.K* Given a list of statements, the student should be able to select the one that best describes the difference between catheterizing the male bladder versus the female bladder.

10.2.5.K* Given a list of Foley catheter sizes, the student should be able to select the most appropriate size for a male and a female.

10.2.6.K* Given a list of statements, the student should be able to select the one that best describes the reason for filling the balloon with saline and not air as is done with the intubation tube.

Skill Objective

After completing this module, the student will be able to correctly perform the skill objective. "Correctly" will be defined by the

*Optional skill.

NOTES

instructor during the lecture and demonstration session. A skill evaluation sheet is included in the module.

NOTES

10.1.1.S Given the following equipment:

- Levin tube
  - — Adult—No. 16 French (1 F. = 1/3 mm)
  - — Children—No. 12 French
- Water-soluble lubricant
- 1-inch-wide tape
- Small clamp
- 50-milliliter (ml)
- Cup of water with a straw
- Emesis basin

the student should be able to demonstrate, on a fellow student, the procedure for inserting a nasogastric tube.

Instructor Activities

Assign the material referred to below during the class period immediately before beginning the unit:

- Chapter 10, Unit 9, of the *Text*
- Knowledge objectives for this unit

Prepare a lecture session following the content outline on page X-85. Provide any slides, overlays, or diagrams. Include the following activities in the presentation:

- Review the skill and knowledge objectives.
- Inform the students that there will be one demonstration and one practice session dealing with the insertion of the nasogastric tube.
- Have all equipment listed in the Equipment and Materials section available for inspection.
- Present a demonstration of nasogastric tube insertion on a student following the outline presented in Demonstration 10.1.1.S.

- Use a slide presentation or film to present the catheterization of the urinary bladder. Tell the students they will not practice this skill until they are in a clinical setting.
- Answer any questions.

NOTES

Monitor the students while they practice the demonstrated skill. Be available during the practice session to answer questions and to correct any incorrect performance observed.

Test the students upon completion of the entire module using the objectives as a guide.

Equipment and Materials

Equipment—Educational

Chalkboard and chalk

Equipment—Medical

Levin tube: adult—No. 16 French (one student); children—No. 12 French (one per student)
Water-soluble lubricant
Tape of 1 inch width
Small clamp (one per every two students)
50-ml syringe (one per every two students)
Cup of water with a straw (one per student)
Emesis basin (one per every two students)
Foley catheter with 5-ml balloon: men—No. 16 French (one per student); women—No. 14 French (one per student)
Sterile gloves
Cleansing sponges
Antiseptic solution (pHisoHex, Zephiran)
Sterile towels
Syringe and needle, containing 5 ml of saline
Clamp (one per every two students)
Water-soluble lubricant
Connecting tubing and collecting bag
Sterile basin (one per every two students)

Materials

Knowledge and skill objectives (optional)
Skill evaluation sheet
Text

91

Content Outline*

NOTES

Introduction

- Review the skill and knowledge objectives.
- Introduce the topics of discussion:

— Nasogastric tube insertion
  a. Purpose
  b. Equipment
  c. Procedure
  d. Complications
— Catheterization of urinary bladder
  a. Indication
  b. Equipment
  c. Procedure

10.1. Nasogastric tube insertion

A. Purpose
  1. Decompression of a distended stomach
  2. Evacuation of stomach contents by lavage
B. Discussion
  1. Point out that it is a very unpleasant experience.
  2. Point out that it should only be performed on a patient able to protect his airway, that is, on a person with an active gag reflex.
  3. Point out that it is performed on a comatose patient only when preceded by intubation of trachea with cuffed tube.
  4. Point out that an EMT should approach the patient with confidence and empathy.
C. Equipment—have equipment available for inspection and describe each piece
  1. Levin tube
    a. Adult—No. 16 French
    b. Children—No. 12 French
  2. Water-soluble lubricant
  3. 1-inch-wide tape

*Optional skill.

4. Small clamp
5. 50-ml syringe
6. Cup of water with a straw
7. Emesis basin

D. Procedural steps
1. Assemble the equipment.
2. Explain the procedure to the patient.
3. Wash the hands; gloves are optional.
4. Lubricate the tip and first few inches of the tube.
5. Position straw between patient's lips.
6. Pass tube along floor of nasal passage.
7. When tube enters oropharynx, have patient drink and keep drinking.
8. Advance tube into stomach—approximately 20 inches.
9. Check position of tube.
10. See Demonstration 10.1.1.

E. Possible problems (describe indications and procedure for correcting problem)
1. Inadvertent passage of nasogastric tube into trachea
2. Tube entangled in pharynx

F. Practice Session 1

10.2. Catheterization of the urinary bladder

A. Indicated whenever:
1. It is necessary to have measurement of urinary output
2. Patient cannot void voluntarily

B. Equipment—have equipment available for inspection and describe each piece
1. Foley catheter with 5-ml balloon
a. Men—No. 16 French
b. Women—No. 14 French
2. Sterile gloves
3. Cleansing sponges
4. Antiseptic solution (pHisoHex, Zephiran)
5. Sterile towels
6. Syringe and needle, containing 5 ml of saline
7. Clamp
8. Water-soluble lubricant
9. Connecting tubing and collecting bag
10. Sterile basin

NOTES

C. Procedure (male catheterization)—describe each step
   1. Place a towel beneath the patient's penis (patient in supine position.
   2. Wash the hands and put on gloves.
   3. Arrange equipment (maintain sterility).
   4. Hold the penis with left hand.
   5. Wash the glands with antiseptic.
   6. Lubricate the catheter and around the meatus.
   7. Introduce and pass the catheter to bifurcation.
   8. Inflate the balloon with saline.
   9. Pull back slightly on the catheter.
   10. Collect a urine sample.
   11. Connect the catheter to a drainage system.
   12. Tape the tubing to the thigh.
   13. If the bladder is full, allow intermittent drainage.

D. Procedure (female catheterization)—similar

NOTES

Summary

- Review the skill and knowledge objectives.
- Review the topics of discussion:

  — Nasogastric tube insertion
    a. Purpose
    b. Equipment
    c. Procedure
    d. Complications
  — Catheterization of urinary bladder
    a. Indication
    b. Equipment
    c. Procedure

- Answer any questions.

Demonstration 10.1.1.S: Nasogastric Tube Insertion

NOTES

Equipment

Levin tube
- Adult—No. 16 French
- Children—No. 12 French

Water-soluble lubricant
1-inch-wide tape
Small clamp
50-ml syringe
Cup of water with a straw
Emesis basin

Procedure

Demonstrate procedure step by step, using a student as a patient. Emphasize each step, including critical errors that can be made. Be sure that each student can see clearly.

Steps

1. Assemble the equipment.
2. Inform the patient of the procedure.
3. Wash hands. Emphasize aseptic technique; gloves are optional.
4. Lubricate the tip and first few inches of a nasogastric tube.
5. Position a straw between patient's lips. Describe purpose of drinking fluid.
6. Pass the tube along floor of nasal passage. Emphasize:
   a. Orientation of the tip when inserting (horizontal)
   b. Problem of damage to the turbinates
7. When the tube enters the oropharynx, instruct the patient to drink.
8. Advance the tube into the stomach. Emphasize:
   a. Problem of passing the tube into the trachea, including procedure for identifying the problem
   b. Procedure for checking the position of the tubing tip
9. Discuss the procedure for gastric lavage. Emphasize:
   a. Patient position
   b. Fluid used
   c. Steps involved

Practice Session 1

NOTES

Equipment

Levin tube (one per student)
Adult—No. 16 French
Children—No. 12 French
Water-soluble lubricant
1-inch-wide tape
Small clamp (one per every two students)
50-ml syringe (one per every two students)
Cup of water with a straw (one per student)
Emesis basin (one per every two students)

Skill

10.1.1.S Nasogastric tube insertion

Procedure

The student selects a partner and attempts to insert a nasogastric tube on the partner. The instructor should provide step-by-step instruction during the first attempt.

Student's name _____

Date _____

Pass 1 2 3

Fail 1 2 3

Skill Evaluation 10.1.1.S: Nasogastric Tube Insertion

Place an "X" in the appropriate column to indicate the steps that are incorrect, out of sequence, or omitted. The student should be given three attempts to perform the skill.

Equipment

Levin tube
- Adult—No. 16 French
- Children—No. 12 French

Water-soluble lubricant
1-inch-wide tape
Small clamp
50-ml syringe
Cup of water with a straw
Emesis basin

Procedure

Each student should pick a partner and be given all equipment listed above.

Under the supervision of the instructor, the student should insert a nasogastric tube.

Steps

___ ___ ___ A. Assemble the equipment.

___ ___ ___ B. Explain the procedure to the patient.

___ ___ ___ C. Wash hands; gloves are optional.

NOTES

___ ___ ___ D. Lubricate the tip and first few inches of tube.

___ ___ ___ E. Position a straw between the patient's lips.

___ ___ ___ F. Pass the tube along the floor of the nasal passage.

___ ___ ___ G. When the tube enters the oropharynx, have the patient drink and keep drinking.

___ ___ ___ H. Advance the tube into the stomach—approximately 20 inches.

___ ___ ___ I. Check the position of the tube.

NOTES

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